RECENT TRENDS IN MODEL ORDER REDUCTION FOR COUPLED PROBLEMS

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ABSTRACT

The discretization of problems in the fields of Heat Transfer, Fluid and Structural mechanics, as well as Fluid-Structure Interaction, produces often high-dimensional systems of equations and requires a high computational effort. This motivates the search for low-dimensional representations of high-dimensional functions such as Reduced Order Models (ROMs) in order to reduce the computational demands. This minisymposium is devoted to recent advances in the field of coupled model order reduction using both intrusive and non-intrusive methods. Some of the methodologies considered are Reduced Basis methods, Machine Learning approaches, Gaussian Processes and Dynamic Mode Decomposition. Possible applications include, but are not limited to, uncertainty quantification, turbulent flows, inverse problems, real-time control, shape optimization, etc.